Volunteer Firemen

Professional Journal of the Volunteer Firemen's Section of the National Fire Protection Association

Volume 2, Number 8 **BOSTON, MASSACHUSETTS** **August, 1935**

This, the first picture ever obtained of the entire membership of the N.F.P.A. Board of Directors was made possible by 100 percent attendance at the June Meeting of the Board in Boston this year. The roster given below shows the wide distribution of interests—business, civic, industrial and governmental—participating in the work of the Association.

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Called to Fire Before It Started

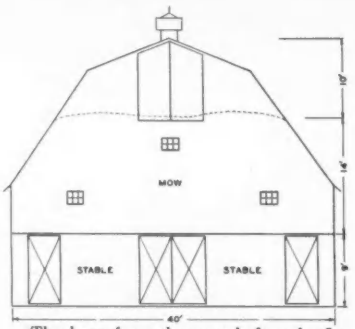
Firemen Had Line to Hay Mow But Lost Roof of the Barn in $10,000 Spontaneous Ignition Fire

A FIRE in the mow of a hay barn is a tough assignment as any experienced volunteer fireman knows. Hay burns fast and barn fires often get such a start that by the time the fire company can get there the building is done for. But when by some unusual chance the fire companies have been called ahead of time, so as to be there when the fire breaks out, and *then* the fire gets away, that is something else again. The control of fire in such a case depends a lot on the peculiar conditions of the fire, the water supply and fire fighting equipment available.

A case of this sort has recently come to attention because of some follow-up research done by experts of the U S. Department of Agriculture who were looking into another interesting phase of the fire, the clear-cut cause of which was the spontaneous ignition of hay. So from both these angles the story of this case is of great interest to every fire fighter whose work takes him frequently out to deal with farm fires.

The fire occurred on the Java Farm near Mayo, Maryland, the property of Mr. R. L. Forrest. It was investigated by Harry E. Roethe, Max A. Bradshaw and Ernest J. Hoffman of the Chemical Engineering Division, Bureau of Chemistry and Soils, U. S. Department of Agriculture. Mr. Roethe is Secretary of the National Fire Protection Association Committee on Spontaneous Heating and Ignition, and also the Committee on Farm Fire Protection. He has prepared a detailed report on the investigation of this fire for the N.F.P.A. QUARTERLY for July 1935 from which the following account is digested.

Mr. Forrest observed that chopped alfalfa hay which had been thrown into his barn about six weeks previously was heating and giving off vapors and odors. Instead of immediately trying to cut out or remove the portions that were heating, and



The barn from the west before the fire and the end elevation of the barn.

run the risk of air getting to them and the hay bursting in flame, he did the wise thing of calling nearby fire companies. He had a water system the main features of which were a 25,000 gallon storage tank, 4-in. mains and 3 hydrants.

Firemen laid a hose line up through the hatch into the mow in order to be ready to put out a fire should one occur while the heated hay was being removed. At this point someone made the mistake of opening the double doors at each end of the mow, because just as they were opened fire broke out in the northwest corner of the mow. There was a muffled explosion and a flash of flame over the surface of the hay. This was a "backdraft", a phenomenon described in more detail in an article on page 5 of this issue. The hay had been smouldering for some time before this and giving off hot gases, and the sudden rush of air into the mow permitted the ignition of these gases with explosive force.

The fire starting in a flash, put the fire companies at a disadvantage. It was not intended to permit the fire to get any such start but such an occurrence might reasonably have been expected and forestalled. If water were available a good protective arrangement might have been to have set up a deluge set so directed that water could have been thrown through the large door at one end of the barn into the burning hay. Burning hay requires lots of water if it is to be put out promptly and a sufficient number of hose lines and pumpers, if available, should have been in position to provide this if possible.

A deluge set consisting of a large nozzle, 1¼-in. tip or larger, and fed by two 2½-in. hose lines would probably have done the trick. This would have provided at least twice the water possible from the one 2½-in. line in position. As it was, the roof of the barn was burned off causing a loss of about $10,000. The hay was largely saved which is evidence that fire fighting operations were effective except for the delay in providing for the strong initial attack on the fire which is always necessary where large amounts of quick-burning materials like hay are involved.

Both floors of the barn were of concrete, the walls were of hollow tile stuccoed on the outside, and the roof was covered with asbestos shingles. The mow was equipped with two ventilators. About 200 tons of hay piled 14 ft. high were in the barn at the time of the fire.

Mr. Forrest stated that the hay was adequately cured when it was chopped, except that some of the first cutting of alfalfa had been rained on in the field. He also said that rain may have leaked on some of the hay.

Investigations were made on three different days after the fire by the engineers of the U. S. Department of Agriculture. In order to find places where there was severe spontaneous heating by taking temperature readings, a strip of hay a few feet wide was removed along the north wall at the west end of the mow. Eight of ten hot spots found were located in this corner as shown on the accompanying plan. The height of hay here was about 8 ft. above the floor, and all eight spots were 1½ ft. from the north and about 5 ft. from the floor.

Each of these locations was near wooden roof trusses or braces.

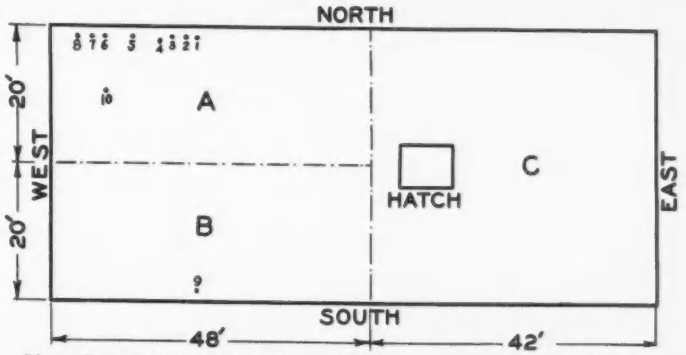
At hot spot No. 4 a section 6 in. in diameter had burned to ash. The temperature here was 286° Fahrenheit, which is 74° above the boiling point of water. The black hay around the ash glowed within a few minutes after exposure to the air.

The roof brace was severely charred and almost burned in two at spot No. 5. Apparently the fire started here when air was admitted into the mow through the end doors. White mold was very heavy in the hay against the north wall, indicating an original high moisture content.

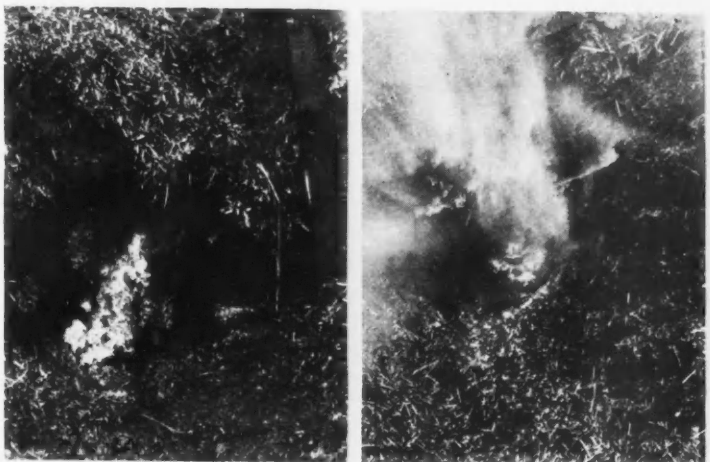
The appearance of the hay surrounding all the hot spots was interesting. Starting at the outside edge and progressing toward the center of a heating area the following characteristics were observed: (1) light brown hay, very dry, and having a dull finish; (2) dark brown hay, dry, and having a glossy finish; (3) black, damp hay, still retaining its original form, with the inside of the stems brown; (4) black, dry hay, completely carbonized, and readily pulverized when rubbed or compressed. If a "fire-pocket" had formed, there was a small central core of white or gray ash.

These observations show that when hot spots or "pockets" have developed in chopped hay in storage, they are numerous, quite small and scattered, but not necessarily at the center of the mow. In long hay only one pocket is generally formed, which is much larger and usually at or near the center of the mow.

The barn from the southwest, taken after the fire. The fire broke out in the northwest section of the mow, shown at the extreme left.



Plan of mow floor. First-cutting alfalfa hay was chopped and blown into Section A about six weeks before the fire. Section B contained old alfalfa hay with several feet of new second-cutting alfalfa on top. There was a layer of new chopped oat hay on top of the alfalfa in both Sections A and B. Section C contained new second-cutting alfalfa which was sacked.



Left: Hot pocket No. 4, showing hay burned to ash. The surrounding hay glowed within a few minutes after exposure to the air. Right: Hot pocket No. 10, 21 minutes after exposure to the air.

FRONT OF CARD

Form No. 1

LIVINGSTON FIRE DEPARTMENT

OFFICERS FIRE REPORT

Fire No. ..... Date ..... Box or Tel. .....
Time ..... Returned .....
Street .....
Construction ..... Stories .....
Owner .....
Occupant .....
How occupied .....
Fire Originated ..... Spread .....
Adjoining Bldg. .....
Cause .....
How Extinguished .....
Chemicals .....
Hose used—2½ in. ..... ft. ¾ in ..... ft.
Ladders Raised ..... Salvage Covers .....
Hours Engine Pumped .....
Companies—Engine ..... Truck ..... Squad .....
Value of Bldg. $ ..... Loss $ .....
Insurance of Bldg. $ ..... Paid $ .....
Value of Contents $ ..... Loss $ .....
Insurance of Contents $ ..... Paid $ .....
Remarks .....

Signed .....
Rank ..... Co. .....

BACK OF CARD

FIRE ROLL CALL

P—Present X—Excused D—Driver O—Operator

No.	P - X	D - O	No.	P - X	D - O	No.	P - X	D - O
Chief			1st A.			2nd A.		
ENGINE NO. 1			SQUAD NO. 1					
Capt.			Capt.			Capt.		
Lieut.			Lieut.			Lieut.		
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
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12			12			12		
13			13			13		
14			14			14		
15			15			15		
16			WARDENS			16		
17			1			17		
18			2			18		
19			3			19		
20			4			20		
21			5			21		
22			6			22		

A Form for Making Fire Reports

A number of good forms for making fire records have been submitted by companies and departments, members of the Volunteer Firemen's Section. The card illustrated above, used by the Fire Department of Livingston, New Jersey, is one of the most comprehensive so far viewed, and may serve to help other companies and departments designing similar forms. The form, reproduced in reduced size above, is 6 in. by 4 in. and, being a card, has some advantages for filing purposes.

Such a form is useful to provide a check list of the items to each fire on which data should be collected. From the cards the essential data should be copied in a journal kept at fire headquarters so as to provide a record from which summaries can be made annually or oftener. The journal is necessary in addition to the individual fire reports to have in one place a complete record of fires by dates.

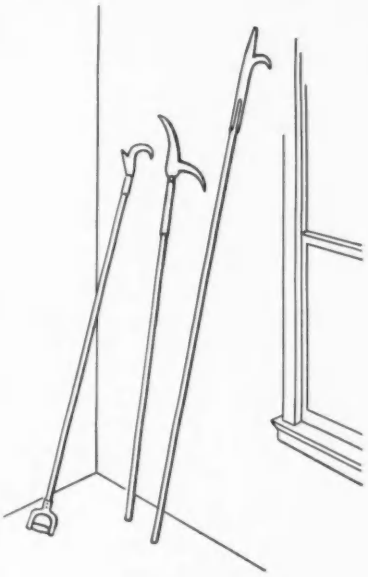
Another good form, similar in general layout to the above, has been sent in by another member, the Delaware Gardens Fire Company of Merchantville, New Jersey. The form is one used by the five companies in that township. It contains the actual name of each man on the company, rather than a number for each man on the roll call list as in the form above.

In Merchantville, the chief of the company makes a summary of the data on the reports at the end of each month and sends it to the township fire marshal. From these, at the end of the year the township marshal is enabled to make an annual report on all fires fought by the five companies in the township. In addition to making the report, fire officers carry notebooks in which they keep additional notes on each fire. Then on Friday nights when the company has its meetings, these notes form the basis for detailed discussion of actual fires fought, and point the way to any special fire prevention activity needed.

It is obvious that there are sometimes fires which may warrant a more detailed report than can be given on a blank like one of these. In such cases supplementary reports with as much additional data as may be needed can be written up.

A fire report form, then, should be simple but complete, and easy to file.

Fire Tools



Pike Poles

The pike pole has a large number of uses at building fires, the most common of which is to remove lath and plaster, ceilings, and partitions. The hook part is used for hooking, catching, or holding, The pike is used for piercing or splitting.

Three different shapes of the pike pole (sometimes called "fire hook") are shown above. The pike and hook part is made of tempered steel, and the handles are made of hickory or other suitable wood. The handles vary in length from 6 to 20 feet.

The long length of the handle makes it possible for the operator to stand out of the way of falling materials when removing lath and plaster or tearing away ceilings. The pike pole is used for tearing down debris when overhauling after a fire.

To pull metal ceilings, the point is driven through the ceiling and the metal is pulled away with the hook. The hook may also be used as a fulcrum for prying the metal from the ceiling, or for prying up a tin roof after it has been cut into strips.

Another important use is for ventilating at a fire. After opening up the roof, the pike pole may be the proper tool to use to reach down to open up the ceiling of the top floor so that the smoke, heat, and gases may escape. It may also be used for opening the windows on the top floor of a building for ventilation. The operator does this by lying face downward on the roof and reaching over the cornice with the pole.

Other uses for pike poles are: pulling and pushing off shingles; lowering fire escapes; passing hose to upper floors by tying the hook on just below the nozzle and coupling, and tying the handle to the nozzle; piercing holes in floors and ceilings for draining; bracing or dogging a ladder; bracing a nozzle when a nozzle holder is not available; as handles for a first-aid stretcher; and as railings for water chutes when draining off water.

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Discussion Subjects

THE topics on which questions and answers are given below have been the subjects of discussion at company and department meetings during the past month.

Correspondence indicates that this section of VOLUNTEER FIREMEN is very popular and that it is widely used in active and progressive companies. Apparently it is instrumental in developing interest and maintaining enthusiasm among the companies using it regularly.

17

Q. If a pumper cannot be driven close enough to a river or lake to reach water with two lengths of suction hose, could the pumper still draft water if four lengths were used?

A. Yes, provided the total vertical lift is less than 25 feet and that the couplings are air-tight. Theoretically pumps can lift water 34 feet, but in actual practice it takes a very good pumper to lift it 25 feet. It is possible, therefore, to use four or even more lengths if a gradual slope from the pumper to the body of water is necessary.

Of course, the greater number of lengths used, the longer it will take the pumper to exhaust the air in the suction hose in order that water may be drawn in. Difference in elevation between the pumper inlet and the water level in the river or lake, and not so much the length of the suction line, is the important consideration.

18

Q. What are "back drafts"?

A. An expansion or explosion of flammable gases. When a fire burns in a closed building it uses up most of the oxygen in the air, and then it continues to smoulder and char combustible material. This produces hot combustible gases, mostly carbon monoxide, which will ignite with a sudden flash when a supply of fresh air is admitted, as by suddenly opening a door or window.

When first opening up in the lower floors of a building heavily charged with smoke or gas, firemen should crouch down at one side of the door, window, or other opening made, so as to be out of the way should an explosion occur.

If a building is properly ventilated by opening up above the fire, the explosive gases will escape. Then when openings are made in the lower floors, the fresh air will tend to drive out the lighter and dangerous gases. This will usually prevent explosive mixtures of gases from forming, and back drafts will not occur.

Problem Questions
FOR AUGUST

Suggested for discussion at company and department meetings this month

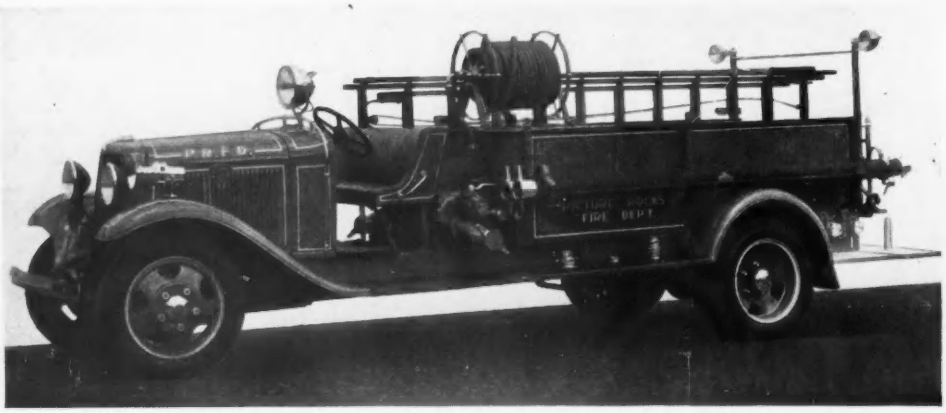
19

What is the best procedure in attacking a cellar or basement fire in a dwelling?

20

What is the first thing to do in case of severe bleeding?

Watch for the answers in the next issue of VOLUNTEER FIREMEN



Accessory Equipment for Fire Apparatus

A List Recommended by N.F.P.A. Committee on Farm Fire Protection for Apparatus in Rural Fire Fighting Service

A helpful list giving the minimum of accessories needed by a company in rural fire fighting service has been prepared by the N.F.P.A. Committee on Farm Fire Protection, of which Dr. David J. Price of the U. S. Department of Agriculture is chairman. The list is intended to serve as a guide to fire companies about to purchase a pumper or chemical truck, or planning to more fully equip pieces of apparatus they already have.

Many of these accessories are included as standard equipment on a piece of apparatus purchased from the manufacturer. The manufacturer may in some cases ask the purchasers to specify in detail what they want on the rig. At any rate a check should be made of the list of accessory items included as standard with the piece under consideration and the company should arrange for additional items needed to be bought with it. Also care should be taken that there will be the necessary brackets, fittings and spaces for carrying the accessories.

Complete specifications for motor fire apparatus have been prepared by the N.F.P.A. (Copies available on request, 10 cents, single copies free to members.) In addition to the accessories in the accompanying list and the truck itself, which is fully covered in the specifications referred to, there are a number of important requirements. The most important of these are: sufficient capacity for carrying at least 500 ft. of 2½-in. cotton rubber-lined fire hose, and a hose basket or reel with sufficient capacity to accommodate 200 ft. of ¾-in. chemical or booster hose. Baskets, reels and other appliances should not be placed over the body so as to obstruct the proper placing of hose.

Locker, tool, and battery boxes should be strong, sufficient in size and number, conveniently placed, and readily accessible. There should, of course, be a full set of automobile tools, a jack and a set of chains for the front and rear wheels, also an extra set of spark plugs, extra fan belt, and extra links for drive chain (if chain driven). There should also be a 10-in. searchlight, towing hooks or rings on front and rear, and if there are fire hydrants in the community there should be a ¾-in. pipe connection in the motor exhaust pipe, with a stopcock at a convenient point and connection for attaching flexible metallic hose for thawing hydrants.

Apparatus should have one hand-operated, power-driven, or electric horn or siren, one gong at least 14 in. in diameter, one locomotive bell at least 10 in. in diameter, or an exhaust whistle. Control should be

Accessories for Pumper or Chemical (Minimum):

1 Twelve-foot ladder with folding hooks.
1 Extension ladder to extend 30 feet.
1 Axe.
2 Fire Department lanterns, nickel plated.
1 Ten-foot pike pole.
1 Shovel.
1 Three-foot crowbar.
1 Fifty-foot length of 1½ in. manila rope.
2 12 x 12 ft. salvage covers.
1—2½ gallon soda-acid extinguisher (Fire Dept. type. 1—2½-gallon anti-freeze extinguisher or 1—5-gallon pump tank extinguisher may be substituted.)
1—2½-gallon foam extinguisher (Fire Department type).
2—1-quart carbon tetrachloride extinguishers or the equivalent.
1—knapsack type pump tank.

Additional Accessories for Pumpers (Minimum):

2—2½ in. play pipes with shut-off nozzles provided with ¾ in., 1 in., and 1⅛ in. smooth bore tips.
2—1½ in. shut-off nozzles each with ½ in. tip.
2 Play pipe cones or screw holders.
4 Lengths, 10 ft. each, smooth bore, rubber suction hose, reinforced with brass wire or copper-coated wire, and provided with suitable couplings.
1 Metal strainer for suction hose.
6 Hose straps.
2 Spanner wrenches.
1 Wye connection 2½ by 2½ by 1½ in. having the 1½ in. outlet gated.
1 Wye connection 2½ by 1½ by 1½ in. having each 1½ in. outlet gated.
1 50-ft. length ¾ in. garden hose.

conveniently located for operating the horn, bell or whistle from the driver's seat.

Chemical apparatus should carry in addition, at least 12 extra chemical charges.

It should be remembered that the accessories listed are minimum requirements. It is quite likely that some companies want other accessories to conform to their own ideas and to the needs of their particular community which may be expected to vary somewhat.

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Fire Schools in Saskatchewan and Alberta

One-day fire prevention schools are held for fire chiefs and members of volunteer fire brigades in various parts of the Province of Saskatchewan each year. Mr. A. E. Fisher (Member N.F.P.A.), Fire Commissioner of the Province, conducts the schools. He is assisted by two paid fire chiefs from cities near where the school is held, a barrister, and an insurance adjuster.

Locations for holding the schools are determined by the distance the volunteers have to travel in order to attend. Each man can leave his home in the morning, take in all the classes and be back at home at night. The attendance generally averages from 125 to 150 volunteer firemen.

This plan for training volunteers is proving to be interesting and of much value to those attending. Mr. Fisher reports that the following subjects are covered at each school.

1. *Legal Status of the Fire Chief.* The necessity of adequate laws and ordinances governing the fire brigade, investigation work, and the making of inspections are stressed.

2. *Organization of Brigades and Maintenance of Interest.* Although practically every town and village in the Province has a fire brigade already organized, there is always a problem of keeping up the interest of the men in their work.

3. *Care of Chemical Equipment.* Since most of the towns and villages use chemical apparatus, practical demonstrations are given on the machine itself, charging, cleaning, and the care of hose.

4. *Inspection of Property.* Drawings of a dwelling and of an average country store are used to show the common hazards to be looked for in these occupancies when firemen are making fire prevention inspections.

5. *Investigations.* The Saskatchewan Fire Prevention Act gives the chief authority for investigating every fire. The Fire Commissioner outlines what is required of the chiefs.

This year's school was held at Lloydminster, a town at the borderline between the provinces of Saskatchewan and Alberta and Fire Commissioner Henry Brace (Member N.F.P.A.) of Alberta co-operated in making the school inter-provincial.

A picture story of what happened as a result of cleaning curtains with gasoline in the basement of a home. Static electricity induced by stirring the fabric in the washing process, or fumes coming in contact with an open flame, are possible causes of the explosion.

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Published by the National Fire Protection Association, a voluntary non-profit organization, 60 Batterymarch Street, Boston, Massachusetts, U.S.A. (Copyright 1935.)

Volume 2 August, 1935 Number 8

The Board of Directors The technical character of VOLUNTEER FIREMEN has prompted a general policy of not running pictures of individuals. However, when a group of such distinguished individuals as those making up the N.F.P.A. Board of Directors can be assembled in one place for the first time, long enough to get a picture of them, the result is sufficient to justify an exception. We believed that many readers of VOLUNTEER FIREMEN would be interested in the picture on the front cover showing what the men that run the association look like.

Fire Losses in Canada, 1934 At the meeting in June of the Association of Canadian Fire Marshals and the Dominion Fire Prevention Association, Hon. J. Grove Smith, Dominion Fire Commissioner, presented the official Canadian fire loss figures for 1934. These showed losses of $25,437,840 or $2.44 per capita, the lowest figure for the past 10 years.

Nearly 50 percent of the total loss occurred in rural districts, and about 20 percent in villages and towns under 10,000 population. The other 30 percent was in cities over 10,000 population. The largest per capita loss—nearly six dollars—was in villages under 1,000 population.

Losses according to population groups is probably not much different in the United States where similar figures are not available. The figures indicate the size of the problem with which volunteer and part paid departments are valiantly trying to deal.

Although the number of fires and the total losses have been decreasing, the number of dwelling fires in Canada has nearly doubled in the past ten years. By far the greatest number of fires are caused by smokers' carelessness.

Support from the Maritimes The Maritime Fire Chiefs Association, comprising the chiefs in the Canadian provinces of New Brunswick, Nova Scotia and Prince Edward Island enthusiastically endorsed the Volunteer Firemen's Section at their annual meeting held in Moncton, N.B., on July 16 and 17. The chiefs passed a resolution calling on all of the volunteer departments in the three provinces to join the section. The chief of the departments at St. Stephen, New Brunswick, and Kentville, Nova Scotia, two cities already members of the Volunteer Firemen's Section, reported great interest aroused in their departments as a result of their membership.

Other important action taken by the convention were resolutions calling on the provincial governments of the three provinces to institute provincial-wide training schools for firemen, and a resolution urging proclamation of the Canadian Electrical Code as a law in the Province of New Brunswick.

The Quarterly and Other Publications We hope that companies are establishing a routine so that all members will have an opportunity to see the QUARTERLY Magazine and other publications which are sent to headquarters each month of companies members of the Volunteer Firemen's Section, in addition to VOLUNTEER FIREMEN mailed to home address of the men. We would like to hear from members of any special procedure which is worked out for the purpose.

41% More Members Than a Year Ago Last August the membership of the Volunteer Firemen's Section was 6,199 men. Today it is 8,768—an increase of over 41 percent in one year's time!

Applications are continuing to come in during the hot summer months in spite of the general practice of many volunteer companies and departments of holding but few, if any, business meetings during this period. Seventeen companies or departments with a total of 369 men have sent in their applications for the first time during the past month. They represent 12 states, and are listed below.

Fountain Hose Company No. 1, Ansonia, Connecticut.

Fairfield Fire Department, Fairfield, Connecticut.

Muddy Brook Fire Department, Woodstock, Connecticut.

Sebring Firemen, Incorporated, Sebring, Florida.

Geneseo Fire Department, Geneseo, Illinois.

McLeansboro Fire Department, McLeansboro, Illinois.

South Hadley Fire Department, South Hadley, Massachusetts.

Bangor Fire Department, Bangor, Michigan.

Wenonah Fire Company No. 1, Wenonah, New Jersey.

Amagansett Fire Department, Amagansett, New York.

New Leipzig Volunteer Fire Department, New Leipzig, North Dakota.

Latrobe Volunteer Fire Department, Latrobe, Pennsylvania.

Newtown Square Fire Company No. 1, Newtown Square, Pennsylvania.

Chesapeake and Ohio Railway, Superintendent of Fire Prevention, Richmond, Virginia.

Marlinton Volunteer Fire Department, Marlinton, West Virginia.

Weston Volunteer Fire Department, Weston, West Virginia.

Kilbourn Fire Department, Wisconsin Dells, Wisconsin.

MEMBERSHIP PLAN

Volunteer Firemen's Section National Fire Protection Association

WHERE twenty or more firemen in a volunteer company or department affiliate with the Volunteer Firemen's Section the cost is 50 cents a year *per man*. Each fireman will receive one copy of VOLUNTEER FIREMEN, the monthly journal of the Volunteer Firemen's Section, mailed regularly to his home address. The company or department automatically becomes a member of the National Fire Protection Association and is entitled to full privileges of membership. All the literature regularly issued to N.F.P.A. members is mailed to headquarters of the company or department.

Membership may be applied for by one member of the company or department collecting 50 cents for each of the 20 or more members and making a single remittance for the group, or the company or department may take a membership for its men and make a single remittance from the company or department treasury.

Companies With Less Than Twenty Members

Because of the large amount of material mailed to members, not less than $10.00 can be accepted from any company or department for membership dues. In the case of companies or departments with less than twenty men this means that the cost divided among them will be slightly higher per man. Of course, some such companies or departments may prefer to make a single remittance of $10.00 from the company or department treasury. In other cases a few interested citizens, not members of the company or department, may be glad to contribute 50 cents apiece to make up the required minimum of twenty, so that the members may secure the rate of 50 cents per man.

These companies or departments have full privileges of N.F.P.A. membership as above, and each member receives the monthly magazine, VOLUNTEER FIREMEN, at his home.

Homes and Camps in Woods

ONCE fire gets a start in a summer home or camp in a forest or woods, the results are quite different from those in a city or town fire where discovery is usually prompt and the fire department reaches the scene quickly with adequate equipment.

A 16-page pamphlet entitled "Fire Protection and Prevention for Summer Homes in Forested Areas", issued by the N.F.P.A. Forest Committee, was recently mailed with the *News Letter* to N.F.P.A. members. Its purpose is to stimulate thought and arouse interest in fire prevention among users of summer homes, camps, and resorts. Such places are usually in or near forests or woods, and weather and fuel conditions present hazardous fire conditions unless extreme caution and care are exercised.

Firemen are often called upon to give advice in such matters and will find this pamphlet useful. Generally it is the volunteer fire department that is nearest summer homes and camps, and is called more frequently than the paid department to fight such building, woods or brush fires.

Each year a considerable number of summer homes burn down, resulting not only in loss of structures and furnishings but also in the destruction of adjacent forested areas. The flammable ground covering surrounding summer homes and camps, the light construction of many summer homes, and the relative inaccessibility to fire fighting apparatus increase this hazard.

Six simple rules that campers and others living near woods should follow to prevent fires are:

1. MATCHES—Be sure your match is out. Break it in two before you throw it away.

2. TOBACCO—Be sure that pipe ashes and cigar or cigarette stubs are dead before throwing them away. Never throw them into brush, leaves, or needles.

3. MAKING CAMP—Before building a fire scrape away all flammable material from a spot 5 feet in diameter. Dig a hole in the center and in it build your camp fire. Keep your fire small. Never build it against trees or logs or near brush.

4. BREAKING CAMP—Never break camp until your fire is out.

5. BRUSH BURNING—Never burn slash or brush in windy weather or while there is the slightest danger that the fire will get away.

6. HOW TO PUT OUT A CAMP FIRE—Stir the coals while soaking them with water. Turn small sticks and drench both sides. Wet the ground around the fire. If you can't get water stir in earth and tread it down until packed tight over and around the fire. Be sure the last spark is dead.

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Made of our special process chemically treated canvas they resist both heat and cold. SHUREDRY covers will not crack or split on your storage shelves — easy to handle — give better service.
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The Volunteer Fire Company

By

William Draper Brinckloe

This book is an attractive volume of 160 pages and 24 illustrations of volunteer fire department apparatus, equipment and fire fighting methods.

It was written by a volunteer fireman. It contains 14 chapters of as interesting reading as a good novel.

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National Fire Protection Association

60 Batterymarch Street
Boston, Massachusetts

Can You Use $10.00?

If You Can, Why Not Submit Your Story Now? Pyrene Letter Contest — Winners This Month

FIRST PRIZE—$10.00

C. B. JARVIS, *Chief*,
Fire Department, Wynne, Ark.

Shingle Roof Conflagration Prevented

"The negro section of our town of 3,500 population is very thickly built up with old houses with wooden shingle roofs. There are only four fire hydrants in this section of about 800 people.

"One night about 10 o'clock when we answered an alarm from negro town, we found one house badly afire, and another house had caught fire. By the time we got 1,200 feet of hose laid to the nearest hydrant, sparks were blowing for two blocks and setting fire to many old wooden shingle roofs. I sent six men, each with a hand chemical extinguisher, on the reserve ladder truck to put out the roof fires.

"The rest of us soon put out the two house fires with the pumper. If it had not been for the extra hand chemicals, we would have had an awful conflagration against our record."

SECOND PRIZE—$3.00

CHARLES WAGAMAN, *Chief*,
Fire Department, Lynnville, Iowa

Power Plant and Mill Saved

"I was night watchman and also worked at a power station and mill, where we did custom milling during the day and generated electricity at night.

"Being away one evening for a short while, I returned to find the mill filled with smoke, which I knew at once came from a hot bearing.

"Rushing to the back room where the generator and water wheels were running, I saw that the boxing on the drive side of the generator was smoking badly. I grabbed an oil can and opened the top of the boxing to pour in some oil, but at that moment the oil that was left in the bottom of the box caught fire, shooting clear up to the ceiling.

"I ran after a small carbon tetrachloride extinguisher in the adjoining room and turned it on the blaze. The fire was beginning to burn into the ceiling. About as soon as I had worked the plunger the fire was out—thanks to the extinguisher, for an old mill is a bad place for fire."

THIRD PRIZE—$2.00

WALTER L. SCHELLER,
Volunteer Fire Dept., Van Dyne, Wis.

1-Quart Extinguisher Kills Fire

"Hearing the call from my wife to come quickly, I ran down to my basement to find the laundry stove ablaze and the basement filled with smoke. Fire was creeping up the wall, and the supply tank of the laundry stove was on fire.

"Grabbing my 1-quart carbon tetrachloride fire extinguisher which is always hanging in its place, I fought the blaze and killed the fire, preventing much damage to our home.

"There was never a more welcome sound than that of the siren of our volunteer fire department answering the call. But the fire was out!"

HONORABLE MENTION

JOHN OHOTNICKY, *Chief*,
Fire Department, Olyphant, Pa.

H. L. TOLLEY,
Volunteer Fire Dept., Dillon, Mont.

FORREST D. BRADSHAW, *Lieut.*,
Sudbury Fire Dept., S. Sudbury, Mass.

YOU are missing a real opportunity for a cash prize if you are not submitting your fire fighting stories in this contest. Just put on paper how an approved fire extinguisher of any make has been used to save life or property and get in line for next month's awards offered in this contest cooperatively by the Pyrene Manufacturing Company of Newark N. J., and VOLUNTEER FIREMEN.

Don't forget to give the kind and size of the hand fire extinguisher used. A number of letters have just missed awards that way. .

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.

2. Letters are to describe actual experiences where any approved fire extinguisher of any make has saved lives or property.

3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.

4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experiences.

5. Only one letter may be submitted each month.

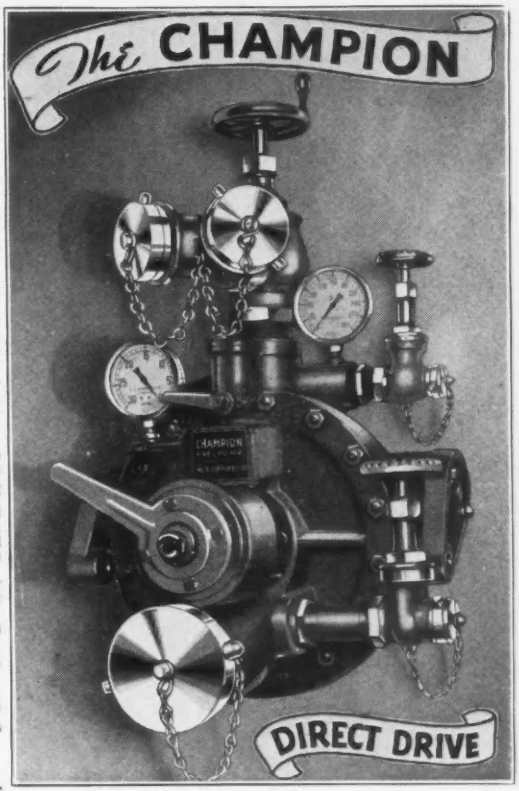
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.

7. Letters received after the 15th of the month will be judged in following month's competition.

8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, $2.00.

9. Address contest letter to Pyrene Prize Letter Contest, National Fire Protection Association, 60 Batterymarch Street, Boston Mass.

Remember—back in your school days—what a chip on the shoulder meant? It was the challenge of a boy who was certain he was right.
And so we place a chip on the new Champion Fire Pump to express what we sincerely believe—that the new Champion has obsoleted all previous standards in the Fire Pump field.
All the old ideas about fire pumps—and even some new theories—have been swept aside.
Engineered to a design so simplified, so clean cut that all unnecessary parts are eliminated.
You don't have to be an engineer to figure out why Fire Chiefs pick this famous new Champion. Just compare what the Champion has to offer.
DIRECT DRIVE. Identical with propeller shaft drive in any automotive chassis, i.e. ☞two Universal joints with Auxiliary Free Shaft coupled between them. Cannot impose a radial load on motor bearings. ☞The only drive connection for FLOATING POWER MOTORS.
NO GEARS. Only Champions do not have to be geared-up to meet Underwriters' tests. All the complications of gearing, an entire assembly of gears, shafts, keys, bolts, screws, bearings, gear case, grease, etc., ARE DONE AWAY WITH. You are freed from the loss of power, the noise, the grease, the handicap of gearing.
VACUUM PRIMER. Automatically shuts itself off when pump is primed. Cannot admit water to flood and kill engine. Yet it has NO FLOATS. ☞ The only primer with this exclusive feature.
FRICTION CLUTCH. No treacherous jaws but a velvet smooth Multiple Disc Clutch. Engages without any possibility of wrecking the motor. Proven construction never before used in a front pump. No Fire Chief would tolerate any other clutch if he knew the advantages of a 120 H.P. CHAMPION MULTIPLE DISC CLUTCH.
BALANCED IMPELLER. In Champion design the impeller thrust is BALANCED—an exclusive feature not found in any other centrifugal pump. No danger of a cracked ball bearing; ☞the very pressure of the water within the pump is diverted into slots so that 75% of the dreaded end thrust is eliminated.
☞**Any pump easily attached to any OLD or NEW chassis.**
We can supply power drive attachments for mounting the Champion on any Fire apparatus or chassis. If you have an old model pumper you can replace the worn out Rotary pump that has seen better days and only add 175 lbs., the weight of a Champion. When ordering specify make, model, motor, and serial number of chassis. ☞Or if numbers are ground off so state and we'll send you simplified questionnaire, reply to which gives us sufficient information to design power drive. ☞Champion Fire Pumps have passed ALL test requirements of the National Board of Fire Underwriters. Recognized and accepted by Actuarial Inspection Bureaus of ALL States.
Price includes Front Mounting Brackets, 300 lb. Pressure Gauge, Automatic Safety Primer, Shut-Off Valve, Brass Caps, with plugged inlet and outlet for booster tank connections, auxiliary motor cooling.
No. F—300-Gallon Capacity. ☞Net price to Fire Departments, complete with all the above equipment, f.o.b. Chicago **$269**
No. F—400-Gallon Capacity. ☞Net price to Fire Departments, complete with all the above equipment, f.o.b. Chicago **$315**
Siamese Connections, Booster Line Valves are extra, but cost little.
No. F—500-Gallon Capacity. ☞Net price to Fire Departments, complete with all the above equipment AND Siamese Outlets, Booster Valves, etc. **$425**
NOTE: The above pumps exceed ratings by 50 to 92 GPM. And from hydrants throw 100 to 250 GPM more than rating.



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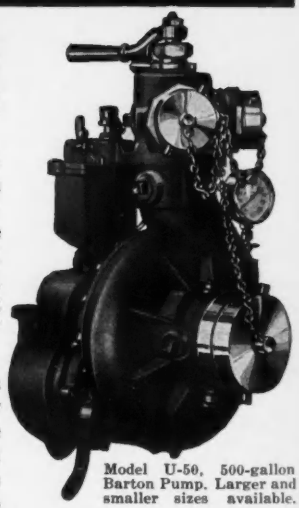

Model U-50, 500-gallon Barton Pump. Larger and smaller sizes available.

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Some thrill to fight fires with a Barton! You're master of any situation. Make runs at 50, 60 miles per hour. No delay when you arrive — at your command instantly are long, powerful streams. Select any modern fire truck, and a Barton Pump can be front mounted at very low cost.

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